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SEP 25 2006

Attorney Docket No. 740756-2656

Application Serial No. 10/692,759

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REMARKS

The Examiner's Office Action of April 24, 2006 has been received and its contents reviewed. Applicants would like to thank the Examiner for the consideration given to the above-identified application and for the indication that claims 164-193 as allowed.

Claims 70-193 are pending, of which claims 70, 76, 82, 88, 94, 100, 107, 114, 121, 128, 134, 140, 146, 152, 158, 164, 170, 176, 182 and 188 are independent. Claims 1-69 have been canceled previously.

In the detailed Office Action, claims 70-163 stand rejected on the ground of non-statutory obviousness-type double patenting as being unpatentable over claims 1-102 of U.S. Patent No. 6,638,781 to Hirakata et al. (hereafter Hirakata). Further, claims 71-93 and 95-163 stand rejected on the ground of non-statutory obviousness-type double patenting as being unpatentable over claims 1-102 of Hirakata in view of Shimada (U.S. Patent No. 6,016,181). In response, Applicants submit herewith a Terminal Disclaimer to overcome the double patenting rejections.

Notwithstanding the submission of the Terminal Disclaimer which renders the rejections as moot, Applicants do not acquiesce to the rejection. Hence, Applicants would like to submit the following remarks in response to the rejection based on the combination of Hirakata and Shimada.

Initially, Applicants note that throughout the double patenting rejection, the Examiner cited U.S. Patent No. 6,016,781 to Toyama, which relates to an internal combustion engine, in combination with Shimada. However, it appears that the Examiner intended to cite US 6,638,781 to Hirakata. Accordingly, Applicants will treat U.S. Patent No. 6,016,781 (Toyama) as a typographical error and regard Hirakata as the primary reference in the rejection. However, Applicants respectfully request the Examiner to acknowledge this error for the completeness of the prosecution history.

With respect to the rejection of claims 73-74, 79-80, 85-86, 91-92, 97-98, 104-105, 111-112, 118-119, 125-126, 131-132, 137-138, 143-144, 149-150, 155-156 and 161-162, Applicants note that the Examiner cited *In re Woodruff* (919 F2d 1575, 1587, 16 USPQ2d 1934, 1936 - Fed. Cir. 1990) and argued that Applicants must show that the dimension are critical. In response to the Examiner's assertion that Applicants must show that the chosen

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dimensions are critical, Applicants respectfully request the Examiner to provide proper authority to support this requirement and to provide proper arguments in addition to citing proper case law related to the requirement for showing criticality of Applicants' chosen dimensions.

Further, Applicants respectfully assert that *In re Woodruff*, as discussed in MPEP 2144.05, pertains to the case where the claimed ranges "overlap or lie inside ranges disclosed by the prior art". Therefore, *In re Woodruff* appears to bear no relevance to the subject matter directed to a plurality of spacers disposed for every six pixels of a plurality of pixels or to a plurality of spacer disposed at a density of 10-200 ones per mm² as recited in dependent claims 73-74, 79-80, 85-86, 91-92, 97-98, 104-105, 111-112, 118-119, 125-126, 131-132, 137-138, 143-144, 149-150, 155-156 and 161-162.

Further, with respect to the combination of Hirakata and Shimada, Applicants note that MPEP 804 (page 800-22 Aug. 2001 Edition) states the following:

Any obviousness-type double patenting rejection should make clear:

*(A) The differences between the inventions defined by the conflicting claims — a claim in the patent compared to a claim in the application;
and*

(B) The reasons why a person of ordinary skill in the art would conclude that the invention defined in the claim in issue is an obvious variation of the invention defined in a claim in the patent.

When considering whether the invention defined in a claim of an application is an obvious variation of the invention defined in the claim of a patent, the disclosure of the patent may not be used as prior art. This does not mean that one is precluded from all use of the patent disclosure.

Further, Applicants would like to submit the following remarks in traversing the rejection and Attachments A and B for illustrative purposes supporting the remarks.

With reference to the features of claims 134-163, Applicants respectfully direct the Examiner's attention to Attachment A with additional hand-written mark-ups of Fig. 1B of U.S. Published Patent Application No. 2004/0084673. This marked-up Fig. 1B shows an example of the "lower portion" recited in the claims. As shown in Fig. 1B in Attachment A, the "second end" is shown as located in plane A, the "center portion" is shown as located in plane B, and the "lower portion" is shown as located in region C. Applicants note that the

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"lower portion" shown may be located in plane D, when the "center portion" is regarded as located in plane B.

As noted above, the marked-up Fig. 1B is for explaining the present invention and should not serve to limit the claimed features. Applicants note that the shape of each of the "first end", the "second end", the "center portion" and the "lower portion" is not limited to a plane, and may be other shapes, such as a point located in or on the surface of each of the plurality of spacers.

In addition to the arguments set forth above, Applicants respectfully assert that Shimada does not teach, disclose or suggest a first end, a second end, a center portion and a taper portion with the combination thereof providing specific shapes, as recited in the pending claims. As shown in Fig. 1 of Shimada, spacers 30 comprise a gap control portion 8 and a light blocking portion 9. The side wall of portion 8 appears to be straight and vertical and connected to crystal alignment films 6 and 7 wherein the angle of the side wall 8 appears to be orthogonal to the horizontal surfaces of the crystal alignment films 6 and 7.

Applicants respectfully assert that the column-shape of the spacers of Shimada (see col. 5, line 25) is different than that of Applicants' claimed invention, and there is no motivation or suggestion found to modify the column-shape of the spacers of Shimada to any other shapes.

In the rejection of claims 76, 107, 140, for example, the Examiner alleged that claim 6 of Shimada disclose an angle between a tangent plane at a center portion and a surface of the second substrate is 65° to 115° . Although Hirakata's claim 6 appears to disclose a α angle of 65° to 115° , there is no motivation or suggestion to modify Shimada's vertical side wall of spacers 30 to any other angle other than the orthogonal angle.

Similarly, with respect to the rejection of claims 88, 121 and 152, although Hirakata teaches a radius curvature of an edge of $2\mu\text{m}$, Shimada appears to only teach a column-shaped spacer with vertical side wall and without any curvature. Hence, without motivation or suggestion to change the shape of the column-shaped spacer of Shimada, the combination of Hirakata and Shimada is improper.

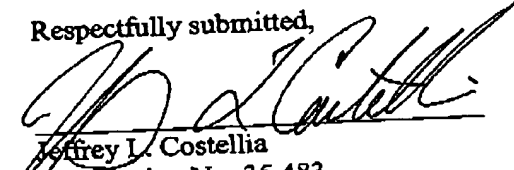
Attachment B is a marked-up Fig. 3 of U.S. Patent No. 6,236,445, which was cited in the IDS filed October 27, 2003. With respect to claims 100-133, and referring to Fig. 3 in Attachment B, Applicants note that the contact surface between spacer 14 and the liquid

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crystal 18 is discontinuously connected to a contact surface between conductive coating 6 and the liquid crystal 18, in term of the shape of the connecting portion between the sidewall of the spacer and the conductive coating. Even when a prior art teaches that the side wall is not vertical and is not orthogonal to the horizontal surface, as in the case of Fig. 3 of U.S. Patent 6,236,445 discussed above, Applicants still believe that claims 100-133 are distinguished from the prior art by the feature of the shape of the connecting portion of two surfaces.

In view of the foregoing, it is respectfully requested that the rejections of record be reconsidered and withdrawn by the Examiner, that claims 70-163 be allowed along with allowed claims 164-193, and that the application be passed to issue. If a conference would expedite prosecution of the instant application, the Examiner is hereby invited to telephone the undersigned to arrange such a conference.

Respectfully submitted,



Jeffrey L. Costellia
Registration No. 35,483

NIXON PEABODY LLP
Suite 900, 401 9th Street, N.W.
Washington, D.C. 20004-2128
(202) 585-8000

ATTACHMENT A

Patent Application Publication

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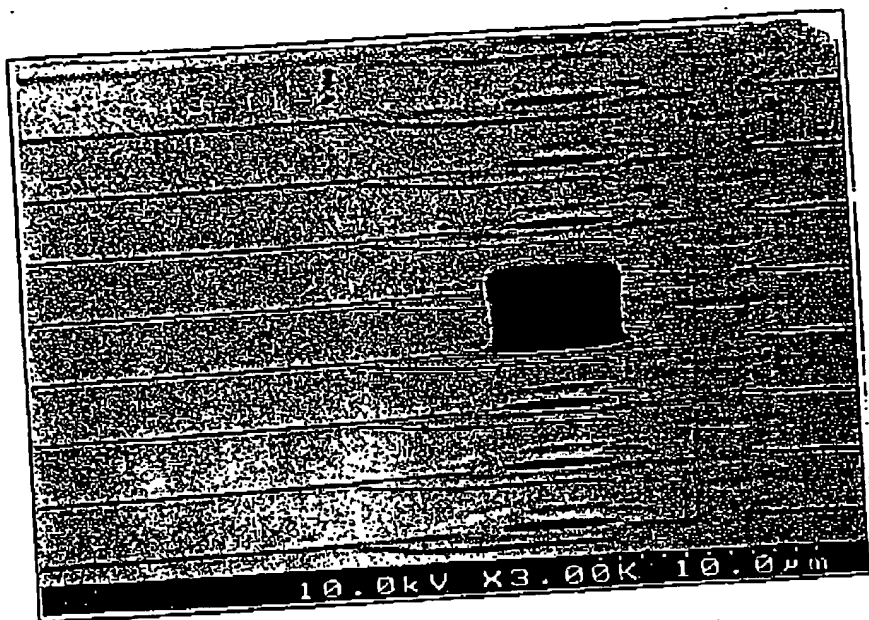


Fig. 1A

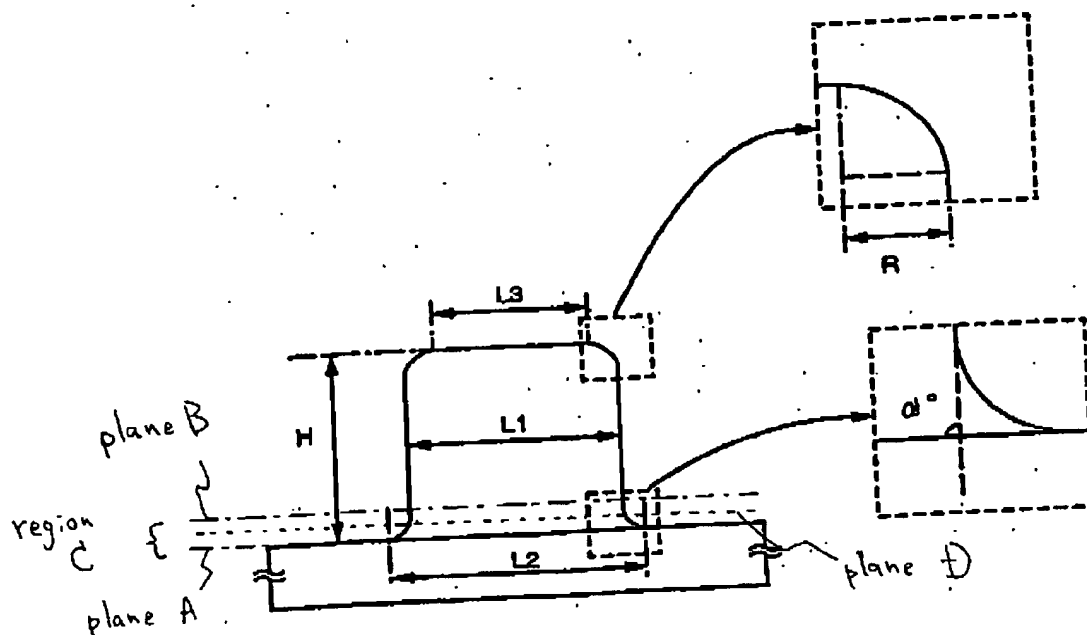


Fig. 1B

© "Second end" is in the plane A

in the region C.

© When the "center portion" is set in the plane B, the "lower portion" is in the region C.

© When the "lower portion" may be set in the plane D

ATTACHMENT B

U.S. Patent

May 22, 2001

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US 6,236,445 B1

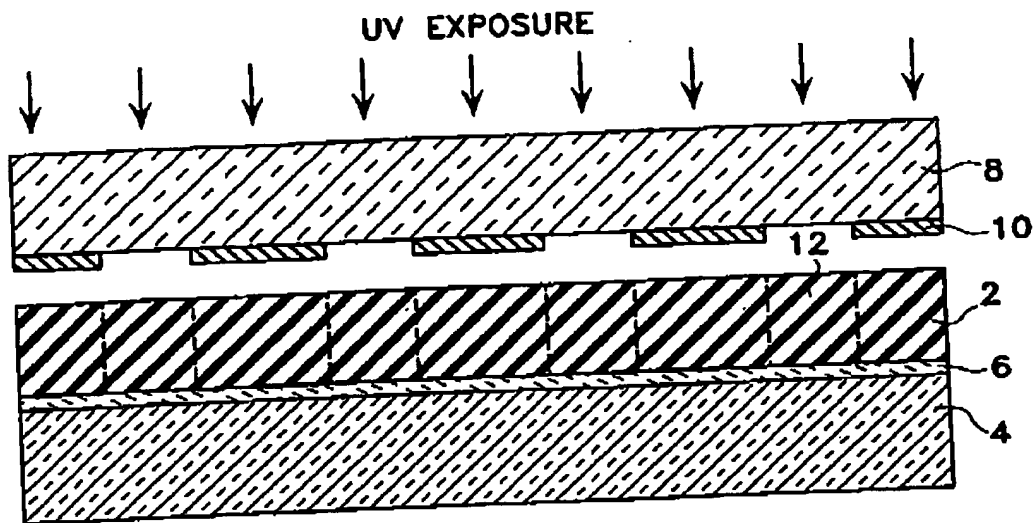


Fig. 1

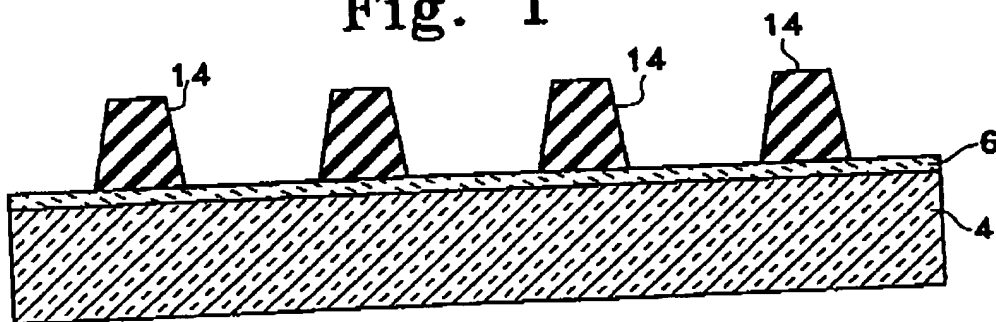


Fig. 2

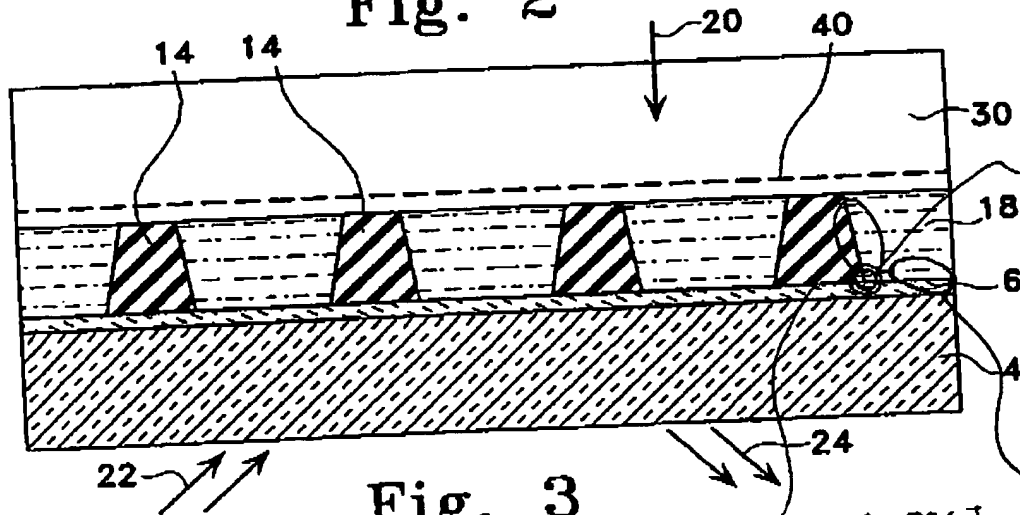


Fig. 3

a contact surface between spacer 14 and liquid crystal 18

a contact surface between conductive coating 6 liquid crystal 18